

2011-03-07 11:26:00

FIG. 1

ATG GCT CGC CTA CAG ACT GCA CTC GTC GTT GTC CTC CTC GCT CTT GCT GTG GCG CTT CAA

GCA ACT GAG GCA GGC CCC TAC GGC GCC AAC ATG GAA GAC AGC GTC TGC TGC CGT GAT TAC

GTC CGT TAC CGT CTG CCC CTG CGC GTG GTG AAA CAC TTC TAC TGG ACC TCA GAC TCC TGC

CCG AGG CCT GGC GTG GTG TTG CTA ACC TTC AGG GAT AAG GAG ATC TGT GCC GAT CCC AGA

GTG CCC TGG GTG AAG ATG ATT CTC AAT AAG CTG AGC CAA TGA

1/31

AGAGCCTACTCTGATGACCGTGCCCTTGGCTCCTCCAGGAAGGCTCAGGAGCCCTACCTCCCTGCCATTATAGCTGCTC

CCCGCCAGAGCCTGTGCCAACTCTCTGCSATTCCTGTATCTCCATCCCTGTGGCTGTCAACCCCTTGGTCAACCTCCGCTGCT

GTCAC TGCCATCTCCCCCTGACCCCTCTAACCCATCCTCTGCCTCCCTGCAGTCAGAGGGTCTGTTCCTCCATCA

GCGATTCCCCCTGCTTAAACCCCTTCCATGACTCCCCCACTGCCCTAAGCTGAGGTCACTCTCCCCAAGCCTGGCATGTGGCC

CTCTGGATCTGGGTTCCATTCTGTCTCCAGCCTGCCCACTTCCCTTTCATGAATGTTGGGTTCTAGCTCCCTGTTCTCTCC

AAACCCATAACACATCCCACTTCTGGGTCTTTGGCTGGGATGTTGCTGACACTCAGAAAGTCCCGTCGACCGGGCC

Applicant: Douglas
Title: NOVEL GENES ENCODING PROTEINS HAVING
PROGNOSTIC, DIAGNOSTIC, PREVENTIVE, THERAPEUTIC,
AND OTHER USES

Attorney/Agent: Jean M. Silveri

Docket No.: MPI2000-540OMNI(M)

Sheet 1 of 31 Sheets

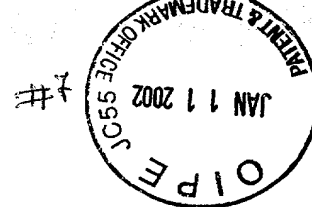


FIG. 3A-1
FIG. 3A-2
FIG. 3A-3

FIG. 3A

```
GTGACCCACGCGTCCGCGCGAGAACCGCAATCTTTGCGCCACAAAATACACGACGATGCCCGATCTACTTTAAG 79
GGCTGAACCCACGCGCCTGAGAGACTATAAGAGCGTTCCTACCGCC ATG GAA CAA CGG GGA CAG AAC 148
M E Q R G Q N
A P A A S G A R K R H G P G P R E A R G 27
GCC CCG GCC GCT TCG GGG GCC CGG AAA AGG CAC GGC CCA GGA CCC AGG GAG GCG CGG GGA 208
A R P G L R V P K T L V L V A A V L L 47
GCC AGG CCT GGG CTC CGG GTC CCC AAG ACC CTT GTG CTC GTT GTC GGC GCG GTC CTG CTG 268
```

FIG. 3A-1

2025-07-20 09:07:26

Applicant: Douglas A. Holtzman et al.
Title: NOVEL GENES ENCODING PROTEINS HAVING
PROGNOSTIC, DIAGNOSTIC, PREVENTIVE, THERAPEUTIC,
AND OTHER USES

Attorney/Agent: Jean M. Silveri
Docket No.: MPI2000-540OMNI(M)

Sheet 4 of 31 Sheets

L V S A E S A L I T Q Q D L A P Q Q R A 67
TTG GTC TCA GCT GAG TCT GCT CTG ATC ACC CAA CAA GAC CTA GCT CCC CAG CAG AGA GCG 328

A P Q Q K R S S P S E G L C P P G H H I 87
GCC CCA CAA AAG AGG TCC AGC CCC TCA GAG GGA TTG TGT CCA CCT GGA CAC CAT ATC 388

S E D G R D C I S C K Y G Q D Y S T H W 107
TCA GAA GAC GGT AGA GAT TGC ATC TCC TGC AAA TAT GGA CAG GAC TAT AGC ACT CAC TCG 448

N D L L F C L R C T R C D S G E V E L S 127
AAT GAC CTC CTT TTC TGC TTG CGC TGC ACC AGG TGT GAT TCA GGT GAA GTG GAG CTA AGT 508

P C T T T R N T V C Q C E E G T F R E E 147
CCC TGC ACC ACG ACC AGA AAC ACA GTG TGT CAG TGC GAA GGC ACC TTC CCG GAA GAA 568

D S P E M C R K C R T G C P R G M V K V 167
GAT TCT CCT GAG ATG TGC CGG AAG TGC CGC ACA GGG TGT CCC AGA GGG ATG GTC AAG GTC 628

G D C T P W S D I E C V H K E S G T K H 187
GGT GAT TGT ACA CCC TGG AGT GAC ATC GAA TGT GTC CAC AAA GAA TCA GGT ACA AAG CAC 688

S G E A P A V E E T V T S S P G T P A S 207
AGT GGG GAA GCC CCA GCT GTG GAG GAG ACG GTG ACC TCC AGC CCA GGG ACT CCT GCC TCT 748

4/31

FIG. 3A-2

Applicant: Douglas A. Holtzman et al.
 Title: NOVEL GENES ENCODING PROTEINS HAVING
 PROGNOSTIC, DIAGNOSTIC, PREVENTIVE, THERAPEUTIC,
 AND OTHER USES

Attorney/Agent: Jean M. Silveri
 Docket No.: MPI2000-540OMNI(M)

Sheet 5 of 31 Sheets

P C S L S G I I I G V T V A A V V L I V	227
CCC TGT TCT CTC TCA GGC ATC ATC ATA GGA GTC ACA GTT GCA GCC GTA GTC TTC ATT GTG	808
A V F V C K S L L W K K V L P Y L K G I	247
GCT GTG TTT GTT TCC AAG TCT TTA CTG TGG AAG AAA GTC CTT CCT TAC CTG AAA GCC ATC	868
C S G G G G D P E R V D R S S Q R P G A	267
TGC TCA GGT GGT GGT GGC GAC CCT GAG CGT GTG GAC AGA AGC TCA CAA CGA CCT GGG GCT	928
E D N V L N E I V S I L Q P T Q V P E Q	287
GAG GAC AAT GTC CTC AAT GAG ATC GTG AGT ATC TTG CAG CCC ACC CAG GTC CCT GAG CAG	988
E M E V Q E P A E P T G V N M L S P G E	307
GAA ATG GAA GTC CAG GAG CCA GCA GAG CCA ACA GGT GTC AAC ATG TTG TCC CCC GGG GAG	1048
S E H L L E P A E A E R S Q R R L L V	327
TCA GAG CAT CTG CTG GAA CCG GCA GAA GCT GAA AGG TCT CAG AGG AGG CTG CTG GTT	1108
P A N E G D P T E T L R Q C F D D F A D	347
CCA GCA AAT GAA GGT GAT CCC ACT GAG ACT CTG AGA CAG TGC TTC GAT GAC TTT CCA GAC	1168
L V P F D S W E P L M R K L G L M D N E	367
TTG GTG CCC TTT GAC TCC TGG GAG CCG CTC ATG AGG AAG TTG GGC CTC ATG GAC AAT GAG	1228

5/31

FIG. 3A-3

FIG. 3B-1
FIG. 3B-2
FIG. 3B-3

FIG. 3B

I	K	V	A	K	A	E	A	A	G	H	R	D	T	L	Y	T	M	L	I	387
ATA	AAG	GTG	GCT	AAA	GCT	GAG	GCA	GCG	GCG	CAC	AGG	GAC	ACC	TTG	TAC	ACG	ATG	CTG	ATA	1288
K	W	V	N	K	T	G	R	D	A	S	V	H	T	L	L	D	A	L	E	407
AAG	TGG	GTC	AAC	AAA	ACC	GGG	CGA	GAT	GCC	TCT	GTC	CAC	ACC	CTG	CTG	GAT	GCC	TTG	GAG	1348
T	L	G	E	R	L	A	K	Q	K	I	E	D	H	L	L	S	S	G	K	427
ACG	CTG	CGA	GAG	AGA	CTT	GCC	AAG	CAG	AAG	ATT	GAG	GAC	CAC	TTG	TTG	AGC	TCT	CGA	AAG	1408
F	M	Y	L	E	G	N	A	D	S	A	M	S	*							441
TTC	ATG	TAT	CTA	GAA	GGT	AAT	GCA	GAC	TCT	GCC	ATG	TCC	TAA							1450

FIG. 3B-1

GIGTGATTCCTCAGGAAGTGAGACCTTCCCTGGTTTACCTTTTCTGGAAAAGCCCCAACTGGACTCCAGTCAGTA 1529

CGAAAGTGCCACAATGTGCACATGACCGGTACTGGAAGAACTCTCCCATCCAACATCACCCAGTGGATGGAACATCCT 1608

GTAACCTTTCACCTGCACTTGGCATTATTTTATAAGCTGAATGTGATAATAAGGACACTATGGAATGTCTCGATCATTT 1687

CCGTTTGTCCGTACTTTGAGATTTCGGTTGGGATGTCTATTGTTTTCACAGCACTTTTATTATCTCTAATGTAAATGCTTTA 1766

TTTATTATTTGGGCTACATGTAGATCCATCTACACAGTCGTGTGTCGGACTTCACCTTGATATACTATATGATAATGAACC 1845

TTTTTTGGGTGGGGGTGCNCGGCAATTTCACCTCTGCTCTCCAGGCTGGAGTGCAATGGTGCAATCTTCGCTCACTATA 1924

GCCTTGACCTCTGAGGCTCAAGCGATTCTCTCACCCTCAGCCATCCAAATAGCTGGGACACAGGTGTGCCACCACCGC 2003

CCGGCTAATTMTTGTATTMTGCTTAAATAAAGGGCTCTCTATGTGTCAGGGTGGTCTCGAAATTCCTGGACTCAAG 2082

CAGTCTGCCCCACTCAGACTCCCAAAGCGGTGGAATTAGARGCGTGAGCCCCCATGCTTGGCCCTTACCTTTCTACTYTTT 2161

TATAATTCGTGTAATTTATTTTATGAACATGAAGAACTTTAGTAAATGTACTTGTATTACATAGTTATGTGAATAGA 2240

TTAGATAACAATAAAGGAGGAGACATACAATGGGGGAAGAAGAAGTCCCCTGTAGAAGTTNACGNTCTCGTTTC 2319

CAGCCTTCCCTCAGATGTACTTTGGCTTCAAATGATTGGCAACTTCTACAGGGGCCAGTCTTTMGAACITGGACAACCTTA	2398
CAAGTATA TGAGTATTATTATTATAGGTAGTTTGTTTTACATATGAGTCCGGGACC AAAGAGAACTGGATCCCGTGAAGTCCT	2477
GTTGTGGCTGGTCCCCTAACCTGGGCAGTCTCATTTGCA CCCCATAGCCCCCATCTATGGA CAGGCTGGGACAGAGGCAGA	2556
TGGGTTAGATCACACATAACAATAGGGTCTATGTCTATATCCCAAGTGAACTTGAGCCCCTGT TTGGGCTCAGGAGATAGA	2635
AGACAAAATCTGTCTCCACGTC TCCCATGGCATCAAGGGGAAGAGTAGATGGTGCTTCAGAAATGGTTT	2714
GCCATCTCAGGAGTAGATGGCCCGGCTCACTTCTCGTTATCTGTCTACCCCTGAGCCCATGAGCTGCC TTTTAGGGTACAG	2793
A TTGCCCTACTTIGAGGACCTTGGCCCGCTCTGTAAAGCATCTGACTCATCTCAGAAATGTCAAATTC TTTAAACACTGTGGCAA	2872
CAGGA CCTAGAA TGGCTGACGCATTAAGTMMMCMTCTGTCTCCCTGTTCTATTTATTTGTTT TAAGACCTCAGTAACCAT	2951
TTTACGCCCTCTTTCCAGCAAACCCCTTCTCCATAGTATTTTCAGTCA TGGAAAGGATCATTTATTCAGGTAGTCA TTCACGA	3030
GTMTT TGGTCTMTTCTGCTCAAGGCATTGTGTGTTTGTGTTCCGGGACTGGTTTGGGTGGGACAAAGTTAGAA TTGCCCT	3109
GAAGATCACACATTCAGACTGTTGTGTCTGTGGAGTTT TAGGAGTGGGGGTGACCTTMTCTGGTCTT MGCAC TMCCATC	3188
CTCTCCCACTTCCATCTGGCATCCCA CGGTTGTCTCCCTGCCACTTCTCGAAGGCACAGGGTGCTGCTGCTCCCTCTGGTCT	3267

8/31

FIG. 3B-3

TTGCCCTTTCCTGGCCCTTCTGTCCAGGAGGCTCAGCCCTCAGGGCTCAGAAGTGCCAGTCCGGTCCAGGTCCTTCGTC 3346
CCTTCCACAGAGGCCCTTCCTAGAGATGCGATCTAGAGTGTACAGCCTTATCAGTGTATTAAGATTTCCTTTTATTTTAA 3425
TTTTTTTGAGACAGAAATCTCACTCTCTGCGCCAGGCTGGAGTGCACCGGTACGATCTTGGCTCAGTGCAACCTCCGCCCT 3504
CCTGGGTTCAAGCGATTCTCGTCCCTCAGCCCTCCGGAGTAGCTGGATTGCCAGGCACCCGCCACCAAGCTGGTTAATT 3583
TTTGTATTTTGTAGACAGCGGGTTTCAACCATGTGTGGTCAAGGCTGGTCTGGAACCTCTGACCTCAGGTGATCCACCTT 3662
GGCCTCCGAAAGTCTCGGATTACAGGCGTGAGCCACAGCCAGGCCAAGCTATTCTTTTAAAGTAAGCTTCTCTGACGA 3741
CATGAAATAATTGGGGTMMGTGTGTACATTTAGGCTTTTCTATATCCCCAGGCCAAATAGCATGTGTACACAGG 3820
ACAGCCATAGTATAGTGTCTCACTCGTGGTGTGCTTTCATGCTTCTGCTGTCACAAAGGTCCTTATTTGAAATGT 3899
GTATATAACAAGGAAGCACATTGTGTACAAATACTTATGTATTTATGAAATCCATGACCAATTAATAATGAAA 3978
CCTTATATAAGCGGCGCGCGC 4051

FIG. 3C

FIG. 4A-1
FIG. 4A-2
FIG. 4A-3

FIG. 4A

GTCGACCCACGGTCCGCGCGGAGAACCCGCAATCTTTGCGCCACAAATACACGAGATGCCCGCATCTACTTTAAG	79
GGCTGAACCCACGGCGCTGAGAGACTATAAGAGCGTTCCCTACCGCC	7
	148
A P A A S G A R K R H G P G P R E A R G	27
GCC CCG GCC GCT TCG GGG GCC CGG AAA AGG CAC GGC CCA GGA CCC AGG GAG GCG CCG GGA	208
A R P G L R V P K T L V L V A A V L L	47
GCC AGG CCT GGG CTC CGG GTC CCC AAG ACC CTT GTG CTC GTT GTC GCC GCG GTC CTC CTG	268

FIG. 4A-1

L	V	S	A	E	S	A	L	I	T	Q	Q	D	L	A	P	Q	Q	R	A	67
TTG	GTC	TCA	GCT	GAG	TCT	GCT	CTG	ATC	ACC	CAA	CAA	GAC	CTA	GCT	CCC	CAG	CAG	AGA	GCG	328
A	P	Q	Q	K	R	S	S	P	S	E	G	L	C	P	P	G	H	H	I	87
GCC	CCA	CAA	CAA	AAG	AGG	TCC	AGC	CCC	TCA	GAG	GGA	TTG	TGT	CCA	CCT	GGA	CAC	CAT	ATC	388
S	E	D	G	R	D	C	I	S	C	K	Y	G	Q	D	Y	S	T	H	W	107
TCA	GAA	GAC	GGT	AGA	GAT	TGC	ATC	TCC	TGC	AAA	TAT	GGA	CAG	GAC	TAT	AGC	ACT	CAC	TGG	448
N	D	L	L	F	C	L	R	C	T	R	C	D	S	G	E	V	E	L	S	127
AAT	GAC	CTC	CTT	TTC	TGC	TTG	CGC	TGC	ACC	AGG	TGT	GAT	TCA	GGT	GAA	GTG	GAG	CTA	AGT	508
P	C	T	T	T	R	N	T	V	C	Q	C	E	E	G	T	F	R	E	E	147
CCC	TGC	ACC	ACG	ACC	AGA	AAC	ACA	GTG	TGT	CAG	TGC	GAA	GAA	GGC	ACC	TTC	CGG	GAA	GAA	568
D	S	P	E	M	C	R	K	C	R	T	G	C	P	R	G	M	V	K	V	167
GAT	TCT	CCT	GAG	ATG	TGC	CGG	AAG	TGC	CGC	ACA	CGG	TGT	CCC	AGA	GGG	ATG	GTC	AAG	GTC	628
G	D	C	T	P	W	S	D	I	E	C	V	H	K	E	S	G	I	I	I	187
GGT	GAT	TGT	ACA	CCC	TGG	AGT	GAC	ATC	GAA	TGT	GTC	CAC	AAA	GAA	TCA	GGC	ATC	ATC	ATA	688
G	V	T	V	A	A	V	V	L	I	V	A	V	F	V	C	K	S	L	L	207
GGA	GTC	ACA	GTT	GCA	GCC	GTA	GTC	TTG	ATT	GTG	GCT	GTG	TTT	GTT	TGC	AAG	TCT	TTA	CTG	748

11/31

FIG. 4A-2

FIG. 4B-1
FIG. 4B-2
FIG. 4B-3

FIG. 4B

A	S	V	H	T	L	L	L	D	A	L	E	T	L	G	E	R	L	A	K	Q	387
GCC	TCT	GTC	CAC	ACC	CTG	CTG	GAT	GCC	TTG	GAG	ACG	CTG	GGA	GAG	AGA	CTT	GCC	AAG	CAG	1288	
K	I	E	D	H	L	L	S	S	S	G	K	F	M	Y	L	E	G	N	A	D	407
AAG	ATT	GAG	GAC	CAC	TTG	TTG	AGC	TCT	GGA	AAG	TTC	ATG	TAT	CTA	GAA	GGT	AAT	GCA	GAC	1348	
S	A	M	S	*																412	
TCT	GCC	ATG	TCC	TAA																1363	

FIG. 4B-1

GTGTGATTCCTTCAGGAAGTGAGACCTTCCCTCGTMTACCTTTTCTGGAAAAAGCCCAACTGGACTCCAGTCAGTA 1442
GGAAAGTCCCACAATTGTTCACATGACCCGTA CTGGAAGAACTCTCCCATCCAACATCACCCAGTGGATGGAACATCCT 1521
GTAACTTTTACCTGCACCTTGGCAATTA TTTTATAAGCTGAATGTGATAATAAGGACACTATGGAATGTCTGGATCAATT 1600
CCGTTCGTGCGTACTTTTGAGATTTCGGTTTGGGATGTCTATTGTTTCACAGCACTTMMTATTCCTAATGTAAATGCTTTTA 1679
TTTATTTATTTTGGGTACATTGTGAATCAATCCATCTACAGTCGTGTGTCGCACTTTCACCTTGTACTATATGATATGAAC 1758
TTTTTTCGGTGGGGTGCNGGGCAATTCCACTCTGTCTCTCCAGGCTGGAGTGCATGCTGCAATCTTTGGCTCACTATA 1837
GCCTTCACCTCTGAGGCTCAAGCGATTCTCTCACCCTCAGCCATCCAAATAGCTGGGACCA CAGGTGTGCACCACCC 1916
CCGGCTAATTTTTCGTCTAAATAATAAGGGCTCTCTATGTTGCTCAGGGTGGTCTCGAATTCCTGGACTCAAG 1995
CAGTCTGCCCCACYTACAGACTCCCAAAGCGGTGGAATTAGARGCGTGAGCCCCCATGCTTGGCCCTTACCTTCTACYT 2074
TATAATTCTGTATGTTTATTTTATGAACATGAAGAACTTTTAGTAAATGTACTTGTATTACATAGTTATGTGAATAGA 2153
TTAGATAACATAAAAGGAGGAGACATACAAATGGGGGAAGAAGAAGTCCCTCTGTAGAAGTTCACGNTCTGGTTTC 2232
CAGCCTTCCCTCAGATGTACTTTGGCTTCAATGATTGGCAACTTCTACAGGGGCCAGTCTTTTGAAGTGGACACCTTA 2311

14/31

FIG. 4B-2

2390	CAAGTATAATGAGTATTATTTATATAGGTAGTGTGTTTACATATGAGTCGGGACCAAGAGAACTGGATCCACGTGAAGTCCT
2469	GTGTGTGGCTGGTCCCTACCTCGGCAGTCTCATTTTCACCCCATAGCCCCCATCTATGGACAGGCTGGGACAGAGGCAGA
2548	TGGGTTAGATCACACATAACAAATAGGGTCTATGTTCATATCCCAAGTGAACCTTGAGCCCCTGTTCGGGCTCAGGAGATAGA
2627	AGACAAAATCTGTCTCCACGCTCTGCCATCGGCATCAAGGGGAAGAGTAGATGGTGTCTGAGAAATGGTGTGAAATGGTT
2706	GCCATCTCAGGAGTAGATGGCCCGGCTCACCTCTGGTTATCTGTTCACCCCTGAGCCCATGAGCTGCCCTTTTATGGGTACAG
2785	ATMGCCCTACTTGAGGACCTTGGCCGCTCTGTGAAGCATCTTGACTCATCTCAGAAATGTCAATTTCTTAAACACTGTGGCAA
2864	CAGGACCTAGAAATGGCTGACGCATTAAAGGTTTCTTCTTGTGTCTCTGTTCCTATTATTGTTTTAAAGACCTCAGTAACCAT
2943	TTTCAGCCTCTTTCAGCAAAACCCTTCTCCATAGTATTTTCAGTCAATGGAAGGATCATTTATTCAGGTAGTCAATCCAGGA
3022	GTTTTTGGTCTTTTCTGTCTCAAGGCAATTGTGTGTTTTGTTCGGGACTGGTTTGGGTGGGACAAAGTTAGAAATTGCCT
3101	GAAAGATCACACATTCAGACTGTTCGTCTCTGTGGAGTTTTTAGGAGTGGGGGTGACCTTTCTGGTCTTTGGCACTTCCATC
3180	CTCTCCCACTTCATCTGGCATCCCAAGCGTTGTCCCTTCCACTTCTCGAAGGCAAGGGTCTCTGCTGCCCTCCCTGGTCT
3259	TTGCCCTTTTGGCCCTTCTGTCCAGGACCGCTCAGCCCTCAGGGCTCAGAAAGGTGCCAGTCCGGTCCCAGGTCCCCTTGTCT

15/31

FIG. 4B-3

3338 CCTTCCACAGAGGCCCTTCCTAGAAAGATGCCATCTAGAGTGTGACGCCCTTATCAGTGTGTTAAGAATTTCCTTTTATTATTAA
 3417 TTTTYYTTCAGACAGAAATCTTCACCTCTCTCGCCCAAGCTGGAGTGCAACGGTACGATCTTTGGCTCAGTGCACCTCCGCCCT
 3496 CCTGGGTTCAAGCGATTCTCTGCTGCTCAGCCTTCGGAGTAGCTGGGATTCCAGGCACCCGCCACCAAGCCTCGTTAAATT
 3575 TTTTGTATTTTTGTAGACAGCGGGTTTTCACCATGTCTGGTCAGGCTGGTCTCCGAACCTCCTGACCTCAGGTGATCCACCTT
 3654 GGCCTCCGAAAGTGGATTACAGGGGTGAGGCCACAGCCAGGCCAAGCTATTCTTTTAAAGTAAGCTTCTCTGACGA
 3733 CATGAAATAATTGGGGGTTTGTGTGTATTAGTTACATTAGGCTTTGCTATATCCCCAGGCCAAATAGCATGTGACACAGG
 3812 ACAGCCATAGTATAGTGTGCTGCTGGTGGTGTCTCTTTCATGCTTCTGCCCCGTGCAAGGTCCTTATTTCGAAATGT
 3891 GTTATAATACAAACAAGCACATTTGTGTACAAAATACTTTATGTAATTATGAAATCCATGACCAAATTAATAATGAAA
 3964 CCTTATATAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAGGSGGGGGGGGGG

FIG. 4C

FIG. 5A-1
FIG. 5A-2
FIG. 5A-3

FIG. 5A

17/31

79

CCACGCGTCGCGCGCGCTGCGCTGAGGGACGGCGGAGCGCGCTGCGCTCGCACTCAAGCCCGCGCAGCGC

158

GCCCCGGCTCGCGCGACCCCGGGGATCTAGGGTGGCGGACTTCGCGGACCGTGCGCCCATGTTTCCTGGGAGTTA

14

CTGATCATCTTCTTTGAAGAAC ATG AAG TTA CAC TAT GTT GCT GTG CTT ACT CTA GCC ATC CTG

223

M K L H Y V A V L T L A I L

34

M F L T W L P E S L S C N K A L C A S D

283

ATG TTC CTG ACA TGG CTT CCA GAA TCA CTG AGC TGT AAC AAA GCA CTC TGT GCT AGT GAT

FIG. 5A-1

Applicant: Douglas A. Holtzman et al.
 Title: NOVEL GENES ENCODING PROTEINS HAVING
 PROGNOSTIC, DIAGNOSTIC, PREVENTIVE, THERAPEUTIC,
 AND OTHER USES

Attorney/Agent: Jean M. Silveri
 Docket No.: MPI2000-540OMNI(M)

Sheet 18 of 31 Sheets

18/31

V	S	K	C	L	I	Q	E	L	C	Q	C	R	P	G	E	G	N	C	S	54	
GTG	AGC	AAA	TGC	CTC	ATT	CAG	GAG	GAG	CTC	TGC	CAG	TGC	CGG	CCG	GGA	GAA	GGC	AAT	TGC	TCC	343
C	C	K	E	C	M	L	C	L	G	A	L	W	D	E	C	C	D	C	V	74	
TGC	TGT	AAG	GAG	TGC	ATG	CTG	TGT	CTT	GGG	CCC	CTT	TGG	GAC	GAG	TGC	TGT	GAC	TGT	GTT	403	
G	M	C	N	P	R	N	Y	S	D	T	P	P	T	S	K	S	T	V	E	94	
GGT	ATG	TGT	AAT	CCT	CGA	AAT	TAT	AGT	GAC	ACA	CCT	CCA	ACT	TCA	AAG	AGC	ACA	GTG	GAG	463	
E	L	H	E	P	I	P	S	L	F	R	A	L	T	E	G	D	T	Q	L	114	
GAG	CTG	CAT	GAA	CCG	ATC	CCT	TCT	CTC	TTC	CGG	GCA	CTC	ACA	GAA	GGA	GAT	ACT	CAG	TTC	523	
N	W	N	I	V	S	F	P	V	A	E	E	L	S	H	H	E	N	L	V	134	
AAT	TGG	AAC	ATC	GTT	TCT	TTC	CCT	GTT	GCA	GAA	GAA	CTT	TCA	CAT	CAT	GAG	AAT	CTG	GTT	583	
S	F	L	E	T	V	N	Q	P	H	H	Q	N	V	S	V	P	S	N	N	154	
TCA	TTT	TTA	GAA	ACT	GTG	AAC	CAG	CCA	CAC	CAC	CAG	AAT	GTG	TCT	GTC	CCC	AGC	AAT	AAT	643	
V	H	A	P	Y	S	S	D	K	E	H	M	C	T	V	V	Y	F	D	D	174	
GTT	CAC	GCG	CCT	TAT	TCC	AGT	GAC	AAA	GAA	CAC	CAC	ATG	TGT	ACT	GTG	GTT	TAT	TTT	GAT	GAC	703
C	M	S	I	H	Q	C	K	I	S	C	E	S	M	G	A	S	K	Y	R	194	
TGC	ATG	TCC	ATA	CAT	CAG	TGT	AAA	ATA	TCC	TGT	GAG	TCC	ATG	GGA	GCA	TCC	AAA	TAT	CGC	763	

FIG. 5A-2

W	F	H	N	A	C	C	E	C	I	G	P	E	C	I	D	Y	G	S	K	214
TGG	TTT	CAT	AAT	GCC	TGC	TGC	GAG	TGC	ATT	GGT	CCA	GAA	TGT	ATT	GAC	TAT	GGT	AGT	AAA	823
T	V	K	C	M	N	C	M	F	*											224
ACT	GTC	AAA	TGT	ATG	AAC	TGC	ATG	TTT	TAA											853
AGA	AGACAA	ATGCA	AAACCA	AGCA	ACTTAG	TAA	ATAATAG	TATA	AAAAAG	TATCTG	TAA	AGTCTG	TCTG	TGTTG	TGTATCT					932
TGT	ATCAGAA	TCCAG	TAAAG	TGTA	AGACT	TTTGG	AATAAG	TTTCT	TTTAA	AAATATG	CATAG	CCAG	TGATGT							1011
GTT	TAA	TATA	AACTG	TTCTT	ACTG	ATTTT	ATTG	CCCCCT	AGCA	ATAAG	CCCTT	TCCTT	TGAA	TACAT	GTACA	ACTTT				1090
GGT	CATATG	AGAAG	CAGGT	CGCAG	AGAAT	TCCTT	GAAAG	ATCTG	AGG	TTTTT	TAACAT	GAGTCT	GATGT	GTTT	TCCT					1169
CTAG	CATCCAA	AGGTTT	TGCTT	TGAA	AGTGT	TAG	CAGAG	CATG	TTG	ATG	GAAT	TATG	ATTCT	TCATG	TGCTAC					1248
TG	TAGCAC	ACTG	AGTTT	TATAG	TTGCC	ACATC	ATTCT	CTCAT	TG	CCCTG	TTTAT	CCATT	TTTATA	AAATAG	AGTAGAT					1327
ATT	TGATAT	ACC	ACTCTG	ATAA	CTCAT	ATA	AAAA	TATCAT	CATA	AAAA	AGCTT	AATTT	CATCC	CTTTT	ATGTTG	TTTA				1406
AA	AGTAA	ATGCTT	ACC	ATA	TTTATA	ATTG	AGAA	CTCTT	TAC	ATAG	TAGAA	TCCAT	TTCTA	TATAC	ATGTTG	ACAAA				1485
GCT	TTAG	AAAG	TTTCC	TAT	TTCTCT	TTCC	ATT	TTCC	CTG	CCCAA	AGTCTG	ACATAG	GCAG	TGATG	GAAGA	ATCTTT	TACC			1564

FIG. 5A-3

AAGATTTCAGGGTGACCTA1GAAATTGCTTTAAATGCACCTGCTGGTGTAAATAATTAGCAAGCAAAGCGTTTCTGT	1643
GACTTCAGGTACCAGCTTAAAGAGCACTAGGGATGGGAACGAATGCCAAATCAGACTCCACCTAGAGCACCAAGGAAC	1722
AGCTTGTAACCTGGTAGGAAATGGTGTGCTGAAAGGGAGGCTGAGCCAGTCCGAGACTGAACTTGTGTCAGCCTTAG	1801
CCAAGACAAAGCAGTGTCTTTCAGCAGACGGCTGATGGGACAGGAATTGAAGAAGAGAAATTGACTCGTATGAACACAGGAC	1880
AGGGTGAAAAATGCTGGGAATTATAATCGGAAACAAACTATCTATGTTTCATATTTTGTAAATATTTTCATTTTGAAGTTT	1959
ATATCTGGATATAATGTTCTTTTTTAAACAAGTATAATCATATCGTCCGAGGTTAAGATTATGAATTTTAGAATCTCTA	2038
TTCAAGATGATGTTCACTCCAAATACACTACAGAATTTTAGTCAACATTTTATATAATGTTTCAATAAATGTTTCTTTCA	2117
ATAAAAAAAAAAAAAAA	2135

FIG. 5B

M	P	S	L	P	A	P	A	P	L	L	L	G	L	L	L	G		20		
ATG	CCG	AGC	CTC	CCG	GCC	CCG	GCC	CCG	CTG	CTG	CTC	GGG	CTG	CTG	CTG	CTC	GGC	60		
S	R	P	A	R	G	A	G	P	E	P	V	L	P	I	R	S	E	K	40	
TTC	CGG	CCG	GCC	CGC	GCC	GCC	CCA	GAG	CCC	CCC	GTC	CTG	CCC	ATC	CGT	TCT	GAG	AAG	120	
E	P	L	P	V	R	G	A	A	G	C	T	F	G	G	K	V	Y	A	L	60
GAG	CCG	CTG	CCC	GTT	CCG	GGA	GCG	GCA	GGC	TGC	ACC	TTC	GGC	GGG	AAG	GTC	TAT	GCC	TGT	180

D	E	T	W	H	P	D	L	G	E	P	F	G	V	M	R	C	V	L	C	80
GAC	GAG	ACG	TGG	CAC	CCG	GAC	CTA	GGG	GAG	CCA	TTC	GGG	GTG	ATG	CGC	TGC	GTG	CTG	TGC	240
A	C	E	A	P	Q	W	G	R	R	T	R	G	P	G	R	V	S	C	K	100
GCC	TGC	GAG	GCG	CCT	CAG	TGG	GGT	CGC	CGT	ACC	AGG	GGC	CCT	GGC	AGG	GTC	AGC	TGC	AAG	300
N	I	K	P	E	C	P	T	P	A	C	G	Q	P	R	Q	L	P	G	H	120
AAC	ATC	AAA	CCA	GAG	TGC	CCA	ACC	CCG	GCC	TGT	GGG	CAG	CCG	CGC	CAG	CTG	CCG	GGA	CAC	360
C	C	Q	T	C	P	Q	E	R	S	S	S	E	R	Q	P	S	G	L	S	140
TGC	TGC	CAG	ACC	TGC	CCC	CAG	GAG	CGC	AGC	AGT	TCG	GAG	CGG	CAG	CCG	AGC	GGC	CTG	TCC	420
F	E	Y	P	R	D	P	E	H	R	S	Y	S	D	R	G	E	P	G	A	160
TTC	GAG	TAT	CCG	CGG	GAC	CCG	GAG	CAT	CGC	AGT	TAT	AGC	GAC	CGC	GGG	GAG	CCA	GGC	GCT	480
E	E	R	A	R	G	D	G	H	T	D	F	V	A	L	L	T	G	P	R	180
GAG	GAG	CGG	GCC	CGT	GGT	GAC	GGC	CAC	ACG	GAC	TTC	GTG	GCG	CTG	CTG	ACA	GGG	CCG	AGG	540
S	Q	A	V	A	R	A	R	V	S	L	L	R	S	S	L	R	F	S	I	200
TGG	CAG	GCG	GTG	GCA	GCC	GCA	GCC	GTC	TCG	CTG	CTG	CGC	TCT	AGC	CTC	CGC	TTC	TCT	ATC	600
S	Y	R	R	L	D	R	P	T	R	I	R	F	S	D	S	N	G	S	V	220
TCC	TAC	AGG	CGG	CTG	GAC	CGC	CCT	ACC	AGG	ATC	CGC	TTC	TCA	GAC	TCC	AAT	GGC	AGT	GTC	660

22/31

FIG. 6A-2

L F E H P A A P T Q D G L V C G V W R A 240
 CTG TTT GAG CAC CCT GCA GCC CCC ACC CAA GAT GGC CTG GTC TGT GGG GTG TGG CGG GCA 720

V P R L S L R L L L R A E Q L H V A L V T 260
 GTG CCT CGG TTG TCT CTG CGG CTC CTT AGG GCA GAA CAG CTG CAT GTG GCA CTT GTG ACA 780

L T H P S G E V W G P L I R H R A L A A 280
 CTC ACT CAC CCT TCA GGG GAG GTC TGG GGG CCT CTC ATC CGG CAC CGG GCC CTG GCT GCA 840

E T F S A I L T L E G P P Q Q G V G G I 300
 GAG ACC TTC AGT GCC ATC CTG ACT CTA GAA GGC CCC CCA CAG CAG GGC GTA GGG GGC ATC 900

T L L T L S D T E D S L H F L L L F R G 320
 ACC CTG CTC ACT CTC AGT GAC ACA GAG GAC TCC TTG CAT TTT TTG CTG CTC TTC CGA GGG 960

L L E P R S G G L T Q V P L R L Q I L H 340
 CTG CTG GAA CCC AGG AGT GGG GGA CTA ACC CAG GTT CCC TTG AGG CTC CAG ATT CTA CAC 1020

Q G Q L L R E L Q A N V S A Q E P G F A 360
 CAG GGG CAG CTA CTG CGA GAA CTT CAG GCC AAT GTC TCA GCC CAG GAA CCA GGC TTT GCT 1080

E V L P N L T V Q E M D W L V L G E L Q 380
 GAG GTG CTG CCC AAC CTG ACA GTC CAG GAG ATG GAC TGG CTG GTG CTG GGG GAG CTG CAG 1140

23/31

FIG. 6A-3

FIG. 6B-1
FIG. 6B-2
FIG. 6B-3

FIG. 6B

```

M  A  L  E  W  A  G  R  P  G  L  R  I  S  G  H  I  A  A  R  400
ATG GCC CTG GAG TGG GCA GGC AGG CCA GGG CTG CGC ATC AGT GGA CAC ATT GCT GCC AGG 1200

K  S  C  D  V  L  Q  S  V  L  C  G  A  D  A  L  I  P  V  Q  420
AAG AGC TGC GAC GTC CAA AGT GTC CTT TGT GGG GCT GAT GCC CTG ATC CCA GTC CAG 1260

T  G  A  A  G  S  A  S  L  T  L  L  L  G  N  G  S  L  I  Y  Q  440
ACG GGT GCT GCC GGC TCA GCC AGC CTC ACG CTG CTA GGA AAT GGC TCC CTG ATC TAT CAG 1320

```

FIG. 6B-1

V Q V V G T S S E V V A M T L E T K P Q 460
GTG CAA GTG GTA GGG ACA AGC AGT GAG GTG GTG GCC ATG ACA CTG GAG ACC AAG CCT CAG 1380

R R D Q R T V L C H M A G L Q P G G H T 480
CGG AGG GAT CAG CGC ACT GTC CTG TGC CAC ATG GCT GGA CTC CAG CCA GGA GGA CAC ACG 1440

A V G I C P G L G A R G A H M L L Q N E 500
GCC GTG GGT ATC TGC CCT GGG CTG GGT GCC CGA GGG GCT CAT ATG CTG CTG CAG AAT GAG 1500

L F L N V G T K D F P D G E L R G H V A 520
CTC TTC CTG AAC GTG GGC ACC AAG GAC TTC CCA GAC GGA GAG CTT CGG GGG CAC GTG GCT 1560

A L P Y C G H S A R H D T L S V P L A G 540
GCC CTG CCC TAC TGT GGG CAT AGC GCC CAT GAC ACC CTG TCC GTG CCC CTA GCA GGA 1620

A L V L P P V K S Q A A G G A GCA GCA GGG CAC GCC TGG CTT TCC TTG GAT 560
GCC CTG GTG CTA CCC CCT GTG AAG AGC CAA GCA GCA GGG CAC GCC TGG CTT TCC TTG GAT 1680

T H C H L H Y E V L L A G L G G S E Q G 580
ACC CAC TGT CAC CTG CAC TAT GAA GTG CTG CTG GCT GGG CTT GGT GGC TCA GAA CAA GGC 1740

T V T A H L L G P P G T P G P R R L L K 600
ACT GTC ACT GCC CAC CTC CTT GGG CCT CCT GGA ACC CCA GGG CCT CGG CGG CTG CTG AAG 1800

25/31

FIG. 6B-2

Applicant: Douglas A. Holtzman et al.
 Title: NOVEL GENES ENCODING PROTEINS HAVING
 PROGNOSTIC, DIAGNOSTIC, PREVENTIVE, THERAPEUTIC,
 AND OTHER USES

Attorney/Agent: Jean M. Silveri

Docket No.: MPI2000-540OMNI(M)

Sheet 26 of 31 Sheets

G	F	Y	G	S	E	A	Q	G	V	V	K	D	L	E	P	E	L	L	R	620
GGA	TTC	TAT	GGC	TCA	GAG	GCC	CAG	GGT	GTG	GTG	AAG	GAC	CTG	GAG	CCG	GAA	CTG	CTG	CGG	1860
H	L	A	K	G	M	A	S	L	M	I	T	T	K	G	S	P	R	G	E	640
CAC	CTG	GCA	AAA	GGC	ATG	GCC	TCC	CTG	ATG	ATC	ACC	ACC	AAG	GGT	AGC	CCC	AGA	GGG	GAG	1920
L	R	G	Q	R	R	T	V	I	C	D	P	V	V	C	P	P	P	S	C	660
CTC	CGA	GGG	CAG	AGA	CGA	ACG	GTG	ATC	TGT	GAC	CCG	GTG	GTG	TGC	CCA	CCG	CCC	AGC	TGC	1980
P	H	P	V	Q	A	P	D	Q	C	C	P	V	C	P	E	K	Q	D	V	680
CCA	CAC	CCG	GTG	CAG	GCT	CCC	GAC	CAG	TGC	TGC	CCT	GTT	TGC	CCT	GAG	AAA	CAA	GAT	GTC	2040
R	D	L	P	G	L	P	R	S	R	D	P	G	E	G	C	Y	F	D	G	700
AGA	GAC	TTG	CCA	GGG	CTG	CCA	AGG	AGC	CGG	GAC	CCA	GGA	GAG	GGC	TGC	TAT	TTT	GAT	GGT	2100
D	R	S	W	R	A	A	G	T	R	W	H	P	V	V	P	P	F	G	L	720
GAC	CGG	AGC	TGG	CGG	GCA	GGC	GGT	ACG	CGG	TGG	CAC	CCC	GTT	GTG	CCC	CCC	TTT	GGC	TTA	2160
I	K	C	A	V	C	T	C	K	G	G	T	G	E	V	H	C	E	K	V	740
ATT	AAG	TGT	GCT	GTC	TGC	ACC	TGC	AAG	GGG	GGC	ACT	GGA	GAG	GTG	CAC	TGT	GAG	AAG	GTG	2220
Q	C	P	R	L	A	C	A	Q	P	V	R	V	N	P	T	D	C	C	K	760
CAG	TGT	CCC	CGG	CTG	GCC	TGT	GCC	CAG	CCT	GTG	CGT	GTC	AAC	CCC	ACC	GAC	TGC	TGC	AAA	2280

26/31

FIG. 6B-3

FIG. 6C-1
FIG. 6C-2

FIG. 6C

Q	C	P	V	G	S	G	A	H	P	Q	L	G	D	P	M	Q	A	D	G	780
CAG	TGT	CCA	GTG	GGG	TCG	GGG	GCC	CAC	CCC	CAG	CTG	GGG	GAC	CCC	ATG	CAG	GCT	GAT	GGG	2340
P	R	G	C	R	F	A	G	Q	W	F	P	E	S	Q	S	W	H	P	S	800
CCC	CGG	GGC	TGC	CGT	TTT	GCT	GGG	CAG	TGG	TTC	CCA	GAG	AGT	CAG	AGC	TGG	CAC	CCC	TCA	2400
V	P	P	F	G	E	M	S	C	I	T	C	R	C	G	A	G	V	P	H	820
GTG	CCC	CCT	TTT	GGA	GAG	ATG	AGC	TGT	ATC	ACC	TGC	AGA	TGT	GGG	GCA	GGG	GTG	CCT	CAC	2460

FIG. 6C-1

C	E	R	D	D	C	S	L	P	L	S	C	G	S	G	K	E	S	R	C	840
TGT	GAG	CGG	GAT	GAC	TGT	TCA	CTG	CCA	CTG	TCC	TGT	GGC	TCG	GGG	AAG	GAG	AGT	CGA	TGC	2520
C	S	R	C	T	A	H	R	R	P	A	P	E	T	R	T	D	P	E	L	860
TGT	TCC	CGC	TGC	ACG	GCC	CAC	CGG	CGG	CCA	GCC	CCA	GAG	ACC	AGA	ACT	GAT	CCA	GAG	CTG	2580
E	K	E	A	E	G	S	*													868
GAG	AAA	GAA	GCC	GAA	GCC	TCT	TAG													2604
GGAG	CAG	CGG	CCA	AGT	GAC	CAAG	AGAT	GGG	CCT	GAG	CTGG	GGA	GGG	TGG	CGAT	CGAG	GAC	CTT	CTT	2683
CTC	CTGT	GGGA	AGCC	CAG	TGCC	CTT	TGCT	CCT	CTGT	CTCT	CTG	CTCT	CTCT	CTCT	CTCT	CTCT	CTCT	CTCT	CTCT	2762
CACA	AGGG	GAG	AGG	CAG	CTGG	CCAG	AGG	TCAC	AGCC	ACTCC	CAAG	TCCT	CGCC	CTG	CCAC	CCCT	CGCC	CTCT	CTG	2841
TTGG	AAG	CCCC	ACCC	CTT	CTCT	GTAC	ATA	TGTC	ACT	GGCT	TGT	GGG	ATTT	TTT	TAAT	TAT	CTT	CAC	TAC	2920
AGGG	CCCC	CGAC	TCC	ACT	CTCT	GTCT	GCCCC	CTG	AGCT	GAG	CA	GAT	CA	TAT	TGG	GAG	ATTT	TGTA	TATTA	2999
TTCT	TTT	TCAG	TCA	AAAA	AAAA	AAAA	AAAA	AAAA	AAAA	AAAA	AAAA	AAAA	AAAA	AAAA	AAAA	AAAA	AAAA	AAAA	AAAA	3037

FIG. 6C-2

FIG. 7A

[illegible]

FIG. 7B

```
GVPHCERDDCSLPLSCGSGKESRCCSRC.....TAHRRPAPETRTDPEL 865
|::| |::| . . :...:| .|||. :|      ...: ...|||. . :
GITQCRREQECTGTTTCGTGSKRDRCCCTKCKDANQDEDEKVKSDETRTPWSF 941
```

FIG. 7C